

Answer Sheet

1	$4x(3x^3+2)$ ✓	10	$(x-1)(5x+2)$ ✓	19	$x=5$; ✓ $x=3$ ✓
2	$2x^3(3x^2-2)$ ✓	11	$(3x-1)(2x+1)$ ✓	20	$x=6$; ✓ $x=-4$ ✓
3	$(x+2)(x^2+5)$ ✓	12	$(3x-2)(x-5)$ ✓	21	$x=-5/2$; ✓ $x=-3$ ✓
4	$(2x-3)(2x^2+5)$ ✓	13	$(x+2)(x-2)$ ✓	22	$x=-9$ ✓ $x=9$ ✓
5	$(x+4)(x-1)$ ✓	14	$(3x+1)(3x-1)$ ✓	23	$x=6$ ✓ $x=5$ ✓
6	$(x-9)(x+2)$ ✓	15	$(x-4y)(x+4y)$ ✓	24	$x=-9$; ✓ $x=-1$ ✓
7	$(x+7)(x-2)$ ✓	16	$(x+5)(x-5)$ ✓	25	$x=126$ ✓
8	$(x-4)(x+3)$ ✓	17	$(x-4)(x^2+4x+16)$ ✓	26	$x \approx 54.17$ ✓
9	$(2x-1)(x+6)$ ✓	18	$(3x+1)$ ✓ $(9x^2-3x+1)$ ✓	27	$x \approx 246.15$ ✓

SI ✓

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Math 115

Test 4

Factor out the Greatest Common Factor

1. $12x^4 + 8x$

2. $6x^5 - 4x^3$

Factor by Grouping

3. $x^3 + 2x^2 + 5x + 10$

4. $4x^3 - 6x^2 + 10x - 15$

Factor

5. $x^2 + 3x - 4$

6. $x^2 - 7x - 18$

7. $x^2 + 5x - 14$

8. $x^2 - x - 12$

9. $2x^2 + 11x - 6$

10. $5x^2 - 3x - 2$

11. $6x^2 + x - 1$

12. $3x^2 - 17x + 10$

13. $x^2 - 4$

14. $9x^2 - 1$

15. $x^2 - 16y^2$

16. $x^2 - 25$

17. $x^3 - 64$

18. $27x^3 + 1$

Solve for x

19. $(x - 5)(x - 3) = 0$

20. $x^2 - 2x - 24 = 0$

21. $2x^2 + 11x + 15 = 0$

22. $x^2 - 81 = 0$

23. $x(x - 11) = -30$

24. $(x + 6)(x + 4) = 15$

Determine the following values approximated to the nearest hundredths.

25. What number is 42% of 320?

26. 65 is 120% of what number?

27. What percent of 52 is 128?

28. What is your name?

math 11S Test 4

$$(1) \quad 12x^4 + 8x = 4x(3x^3 + 2)$$

$$(2) \quad 6x^5 - 4x^3 = 2x^3(3x^2 - 2)$$

$$(3) \quad \underline{x^3 + 2x^2 + 5x + 10} = x^2(x+2) + 5(x+2) \\ = (x+2)(x^2+5)$$

$$(4) \quad 4x^3 - 6x^2 + 10x - 15 = 2x^2(2x-3) + 5(2x-3) \\ = (2x-3)(2x^2+5)$$

$$(5) \quad x^2 + 3x - 4 = (x+4)(x-1)$$

$$(6) \quad x^2 - 7x - 18 = (x-9)(x+2)$$

$$(7) \quad x^2 + 5x - 14 = (x+7)(x-2)$$

$$(8) \quad x^2 - x - 12 = (x-4)(x+3)$$

$$(9) \quad 2x^2 + 11x - 6 = 2x^2 + 12x - x - 6$$

$$\text{Prod} = -12 \quad = 2x(x+6) - 1(x+6)$$

$$\text{Sum} = 11$$

$$= (2x-1)(x+6)$$

$$(12, -1)$$

$$(10) \quad 5x^2 - 3x - 2 = 5x^2 - 5x + 2x - 2$$

$$\text{Prod} = -10 \quad = 5x(x-1) + 2(x-1)$$

$$\text{Sum} = -3$$

$$(-5, 2) \quad = (x-1)(5x+2)$$

$$(11) \quad 6x^2 + x - 1 = 6x^2 + 3x - 2x - 1$$

$$\text{Prod} = -6$$

$$= 6x^2 + 3x - 2x - 1$$

$$\text{Sum} = 1$$

$$= 3x(2x+1) - 1(2x+1)$$

$$(3, -2)$$

$$= (3x-1)(2x+1)$$

$$(12) \quad 3x^2 - 17x + 10 = 3x^2 - 15x - 2x + 10$$

$$\text{Prod} = 30$$

$$= 3x(x-5) - 2(x-5)$$

$$\text{Sum} = -17$$

$$= (3x-2)(x-5)$$

$$-5, -2$$

$$(13) \quad x^2 - 4 = (x+2)(x-2)$$

$$(14) \quad 9x^2 - 1 = (3x+1)(3x-1)$$

$$(15) \quad x^2 - 16y^2 = (x-4y)(x+4y)$$

$$(16) \quad x^2 - 25 = (x+5)(x-5)$$

$$(17) \quad x^3 - 64 = x^3 - 4^3$$

$$= (x-4)(x^2 + 4x + 16)$$

$$(18) \quad 27x^3 + 1 = \frac{27x^3 + 1^3}{(3x)^3 + 1^3}$$

$$= (3x+1)((3x)^2 + 3x + 1^2)$$

$$= (3x+1)(9x^2 + 3x + 1)$$

(19) $(x-5)(x-3)=0$

$$\begin{array}{l} x-5=0 \\ +5 \quad +5 \end{array}$$

$$x=5$$

$$\begin{array}{l} x-3=0 \\ +3 \quad +3 \end{array}$$

$$x=3$$

(20) $x^2 - 2x - 24 = 0$

$$(x-6)(x+4)=0$$

$$\begin{array}{l} x-6=0 \\ +6 \quad +6 \end{array}$$

$$x=6$$

$$\begin{array}{l} x+4=0 \\ -4 \quad -4 \end{array}$$

$$x=-4$$

(21) $2x^2 + 11x + 15 = 0$

$$(2x+5)(x+3)=0$$

$$\begin{array}{l} 2x+5=0 \\ -5 \quad -5 \end{array}$$

$$\frac{2x}{2} = \frac{-5}{2}$$

$$x = -\frac{5}{2}$$

$$\begin{array}{l} x+3=0 \\ -3 \quad -3 \end{array}$$

$$x=-3$$

$$(22) \quad x^2 - 81 = 0$$

$$(x+9)(x-9) = 0$$

$x+9=0$ $-9 \quad -9$ $x = -9$	$x-9=0$ $+9 \quad +9$ $x = 9$
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$$(23) \quad x(x-11) = -30$$

$$x^2 - 11x = -30$$
$$+30 \quad +30$$

$$x^2 - 11x + 30 = 0$$

$$(x-6)(x-5) = 0$$

$x-6=0$ $+6 \quad +6$ $x = 6$	$x-5=0$ $+5 \quad +5$ $x = 5$
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$$(24) \quad (x+6)(x+4) = 15$$

$$x^2 + 6x + 4x + 24 = 15$$

$$x^2 + 10x + 24 = 15$$
$$-15 \quad -15$$

$$x^2 + 10x + 9 = 0$$

$$(x + 9)(x + 1) = 0$$

$$\begin{array}{l} x + 9 = 0 \\ -9 \quad -9 \end{array}$$

$$x = -9$$

$$\begin{array}{l} x + 1 = 0 \\ -1 \quad -1 \end{array}$$

$$x = -1$$

(25) what number is 42% of 320
 $x = 42\% \cdot 300$

$$x = 0.42 \cdot 300$$

$$x = 126$$

(26) 65 is 120% of what number?

$$65 = 120\% \cdot x$$

$$65 = 1.2x \quad ; \quad \frac{65}{1.2} = \frac{1.2x}{1.2}$$

$$x = \frac{65}{1.2} \quad ; \quad x = 54.17$$

(27) what percent of 52 is 128
 $x\% \cdot 52 = 128$

$$\frac{x}{100} \cdot 52 = 128$$

$$\frac{100}{52} \cdot \frac{52x}{100} = 128 \cdot \frac{100}{52}$$

$$x = \frac{12800}{52} \quad \therefore \underline{x \approx 246.15}$$